Emerging Technologies In 21st Century Schools

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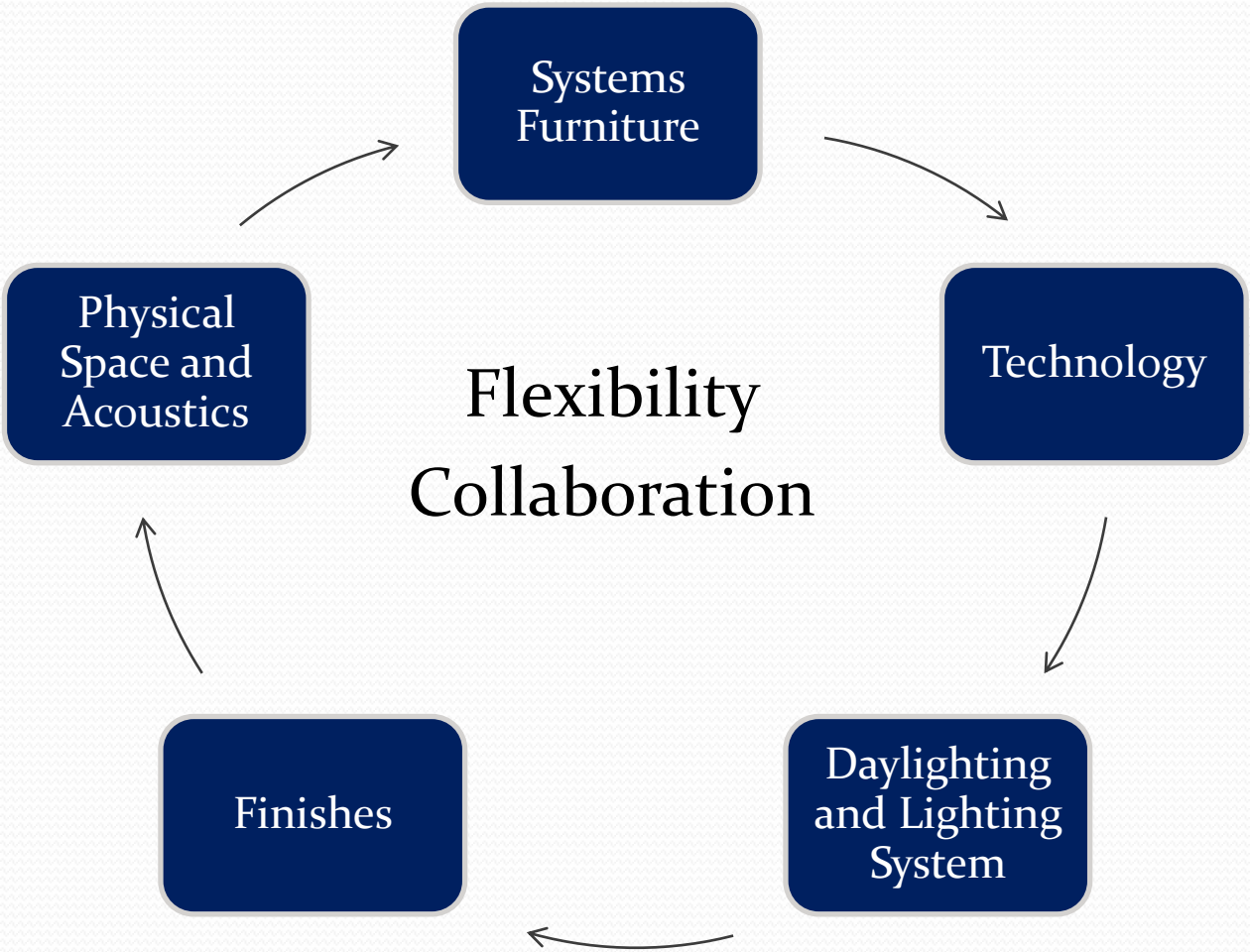
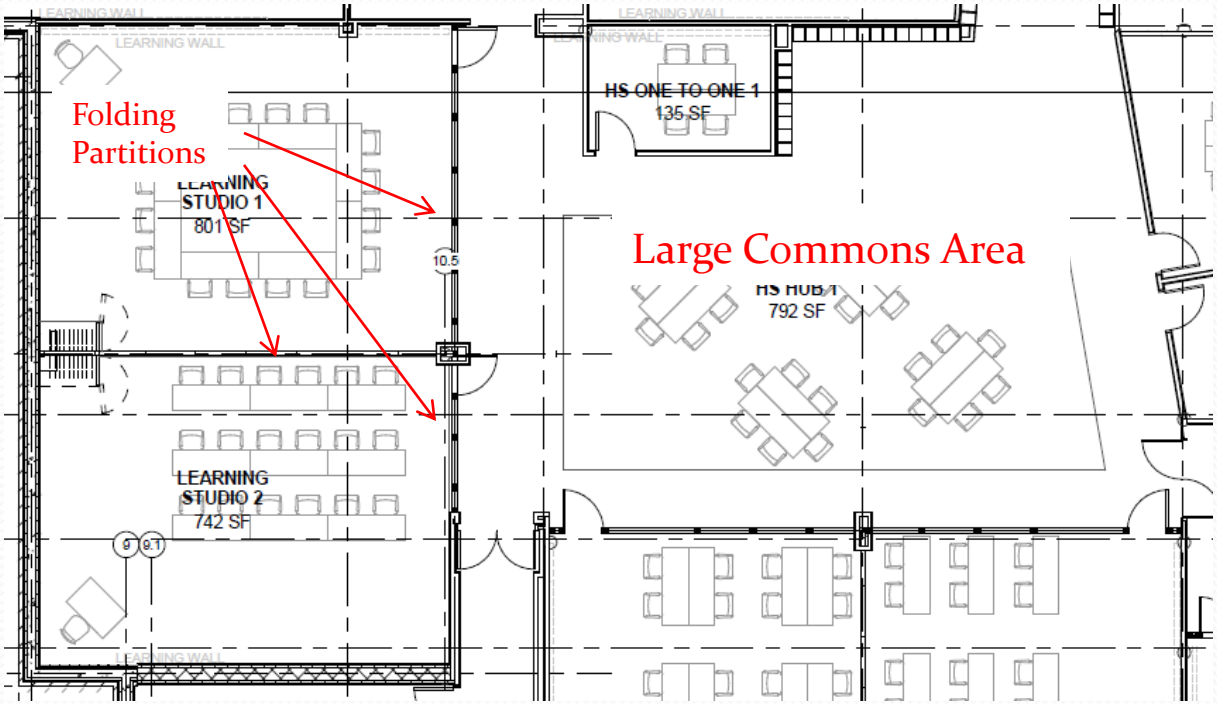
21st Century Design Thinking

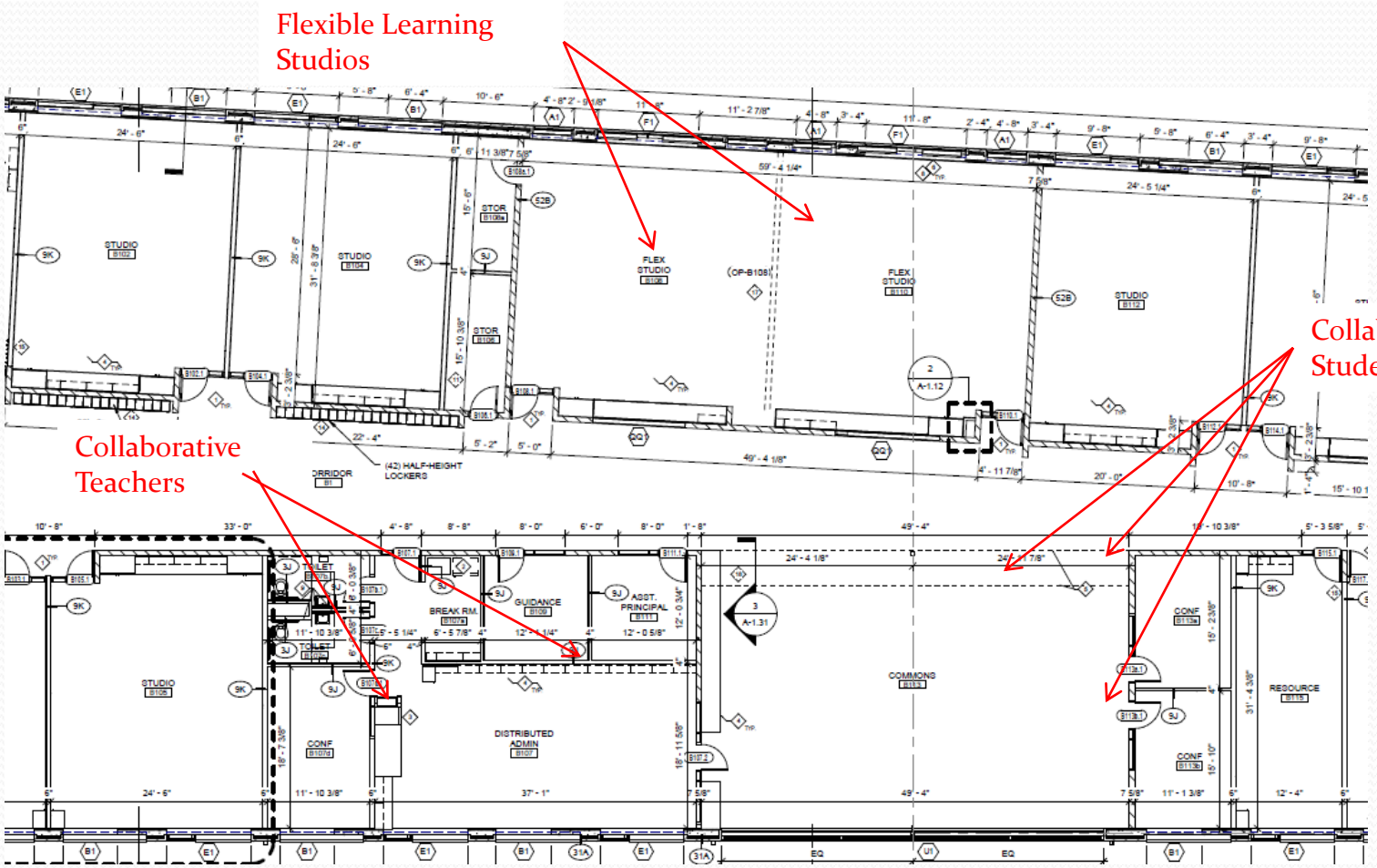


- Quanitco MS/HS
  - Movable Partitions
  - Common Areas
  - Movable Furniture
  - Adjustable Classroom Configurations

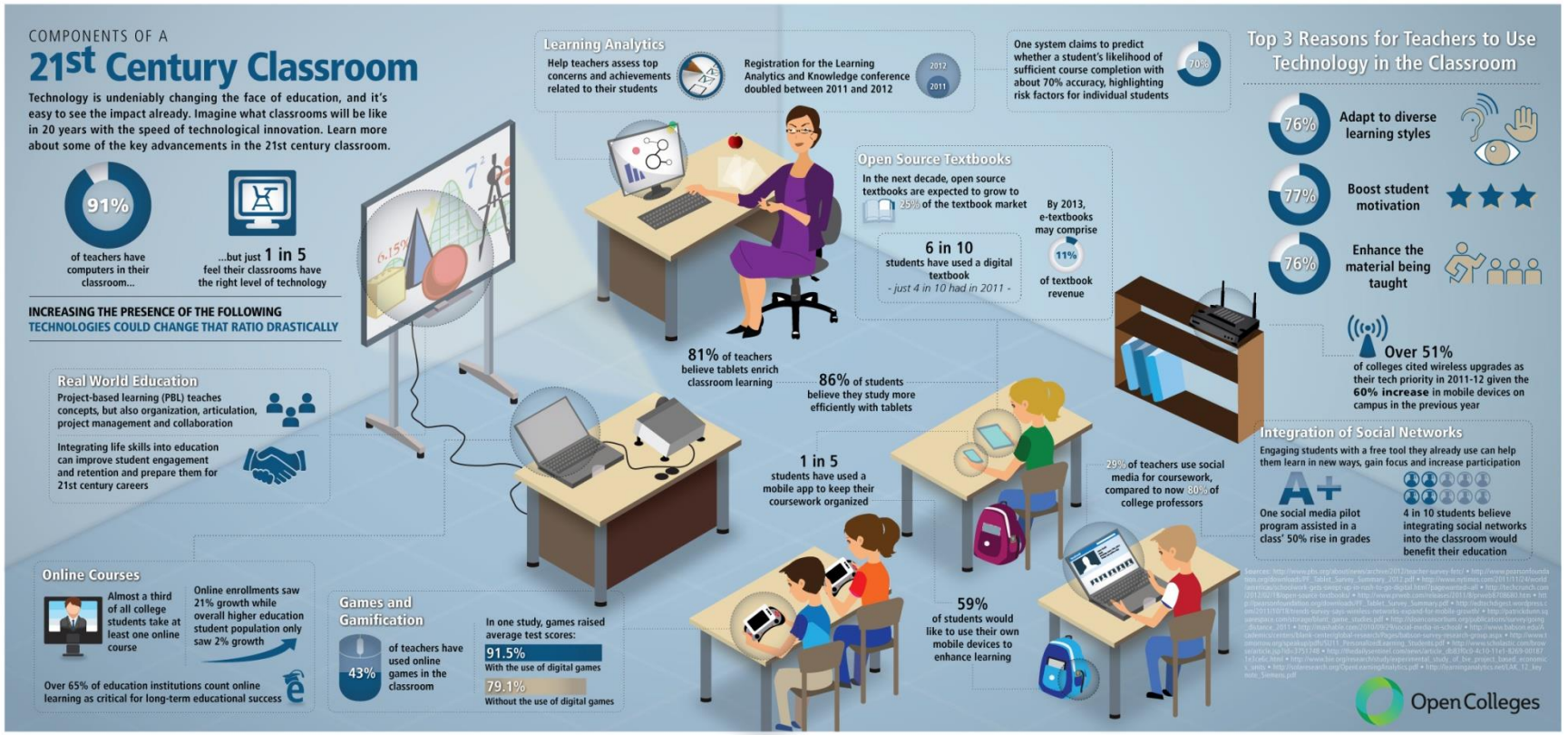


Fayette County High School

- Flexibility
  - One pair of learning studios with folding partitions
- Distributed commons over one large area
  - Reallocating media center space
- Teacher collaboration

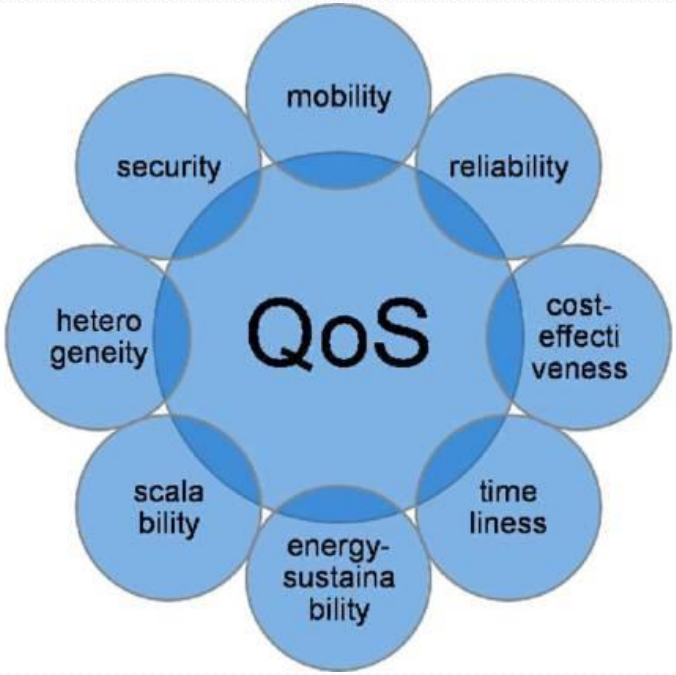


21st Century Design Thinking



Quality of Service

- Old School
  - Dropped calls
  - Strength of signal
  - Length of runs



- New School
  - Reliability (!!)
  - Throughput
  - Bandwidth
  - Availability
  - Minimizing Jitter
  - Error rates
  - Ease of use

1:1

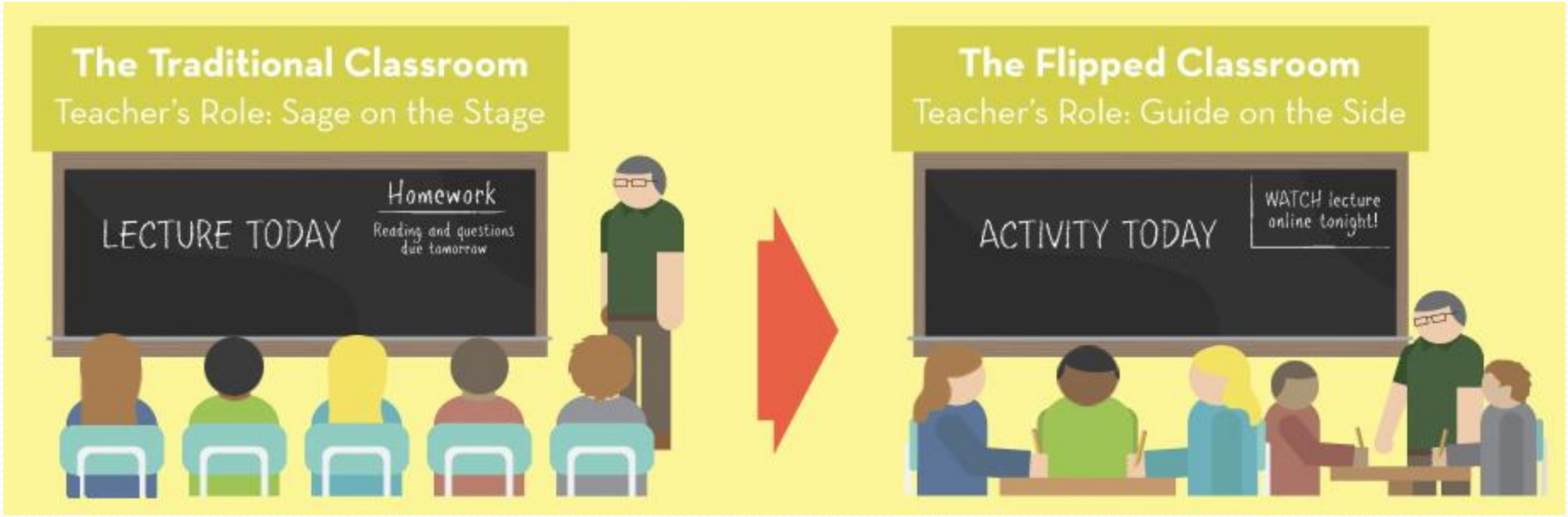
- What is 1:1?
- User concerns?
- Control

- 1:1 Classroom Look
- Security
- COLLABORATION

Security/Monitoring

- Thumbnail monitoring
- Centralized monitoring
- Screen logging
- Policy shift

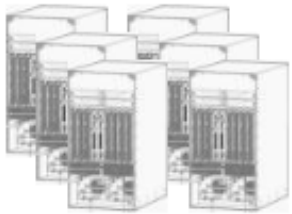
The Flipped Classroom – I.T. Impact



Seeing the Light – Fiber Optic Benefits

- Less is More
  - Less HVAC load
  - Less power load
  - Less building SF
  - Less cable room
  - Less material overall
  - Less line loss (PoE)

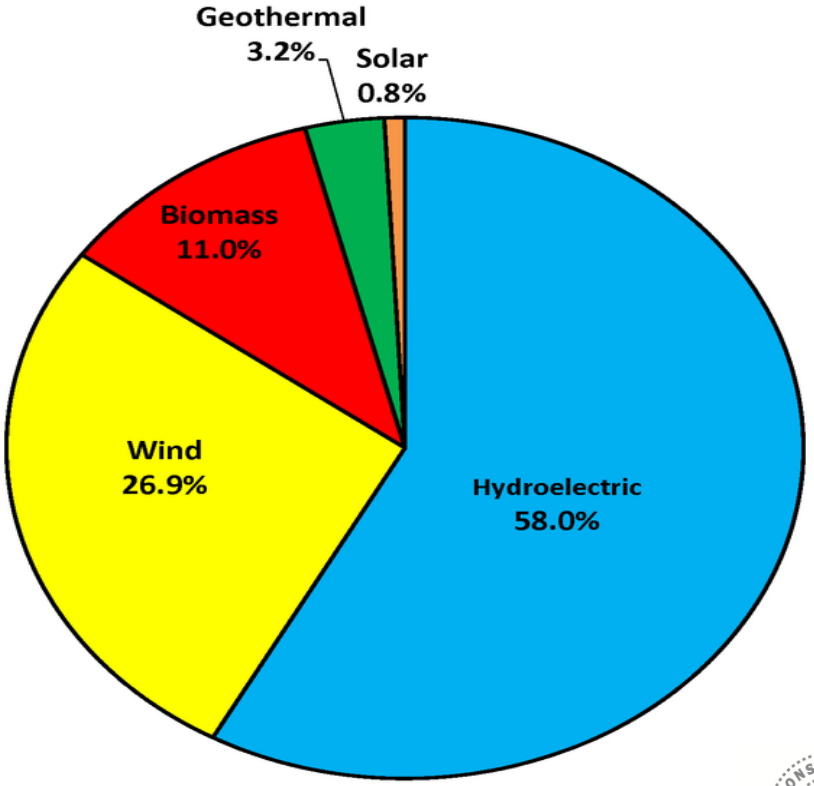
Optical LAN
8,192 users
9 rack units



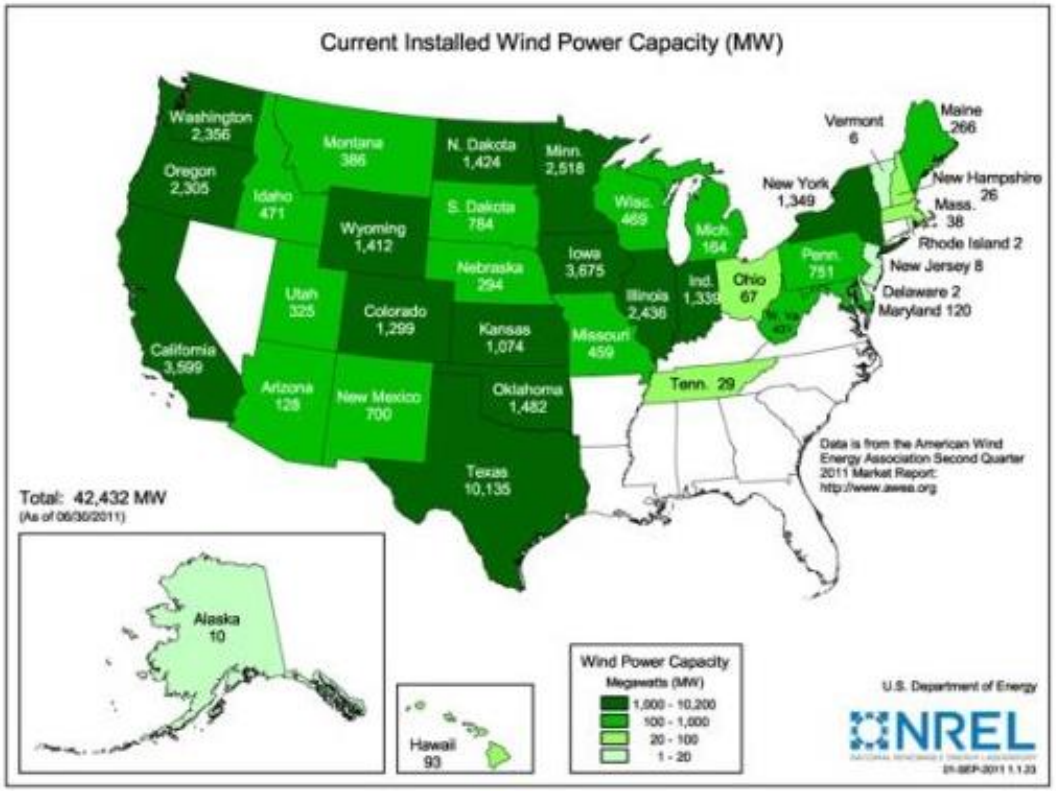
Ethernet LAN
2,016 users
90 rack units
3 equipment racks used

Renewable Energy

- Energy from a source that is not depleted when used
  - Solar
    - Solar Thermal
    - Solar Photovoltaic
  - Earth
    - Geothermal
  - Biomass/Biofuels
  - Wind
    - Wind Turbines
  - Water
    - Hydroelectricity

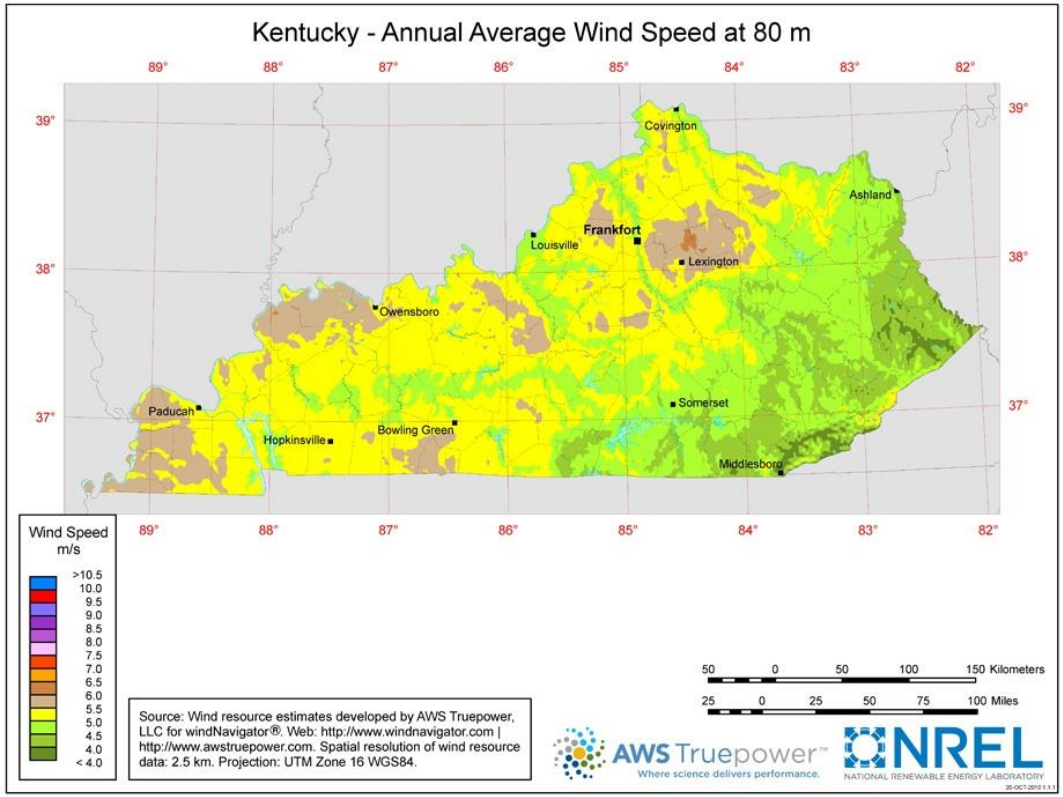


Renewable Energy



Wind

- Approximately 10 mph or 4.5 m/s needed for turbine
- Cost $2,000/kW installed for large scale (1 MW)
- Cost $6,000/kW installed for small scale (100 kW)



Solar Thermal

Solar Photovoltaic

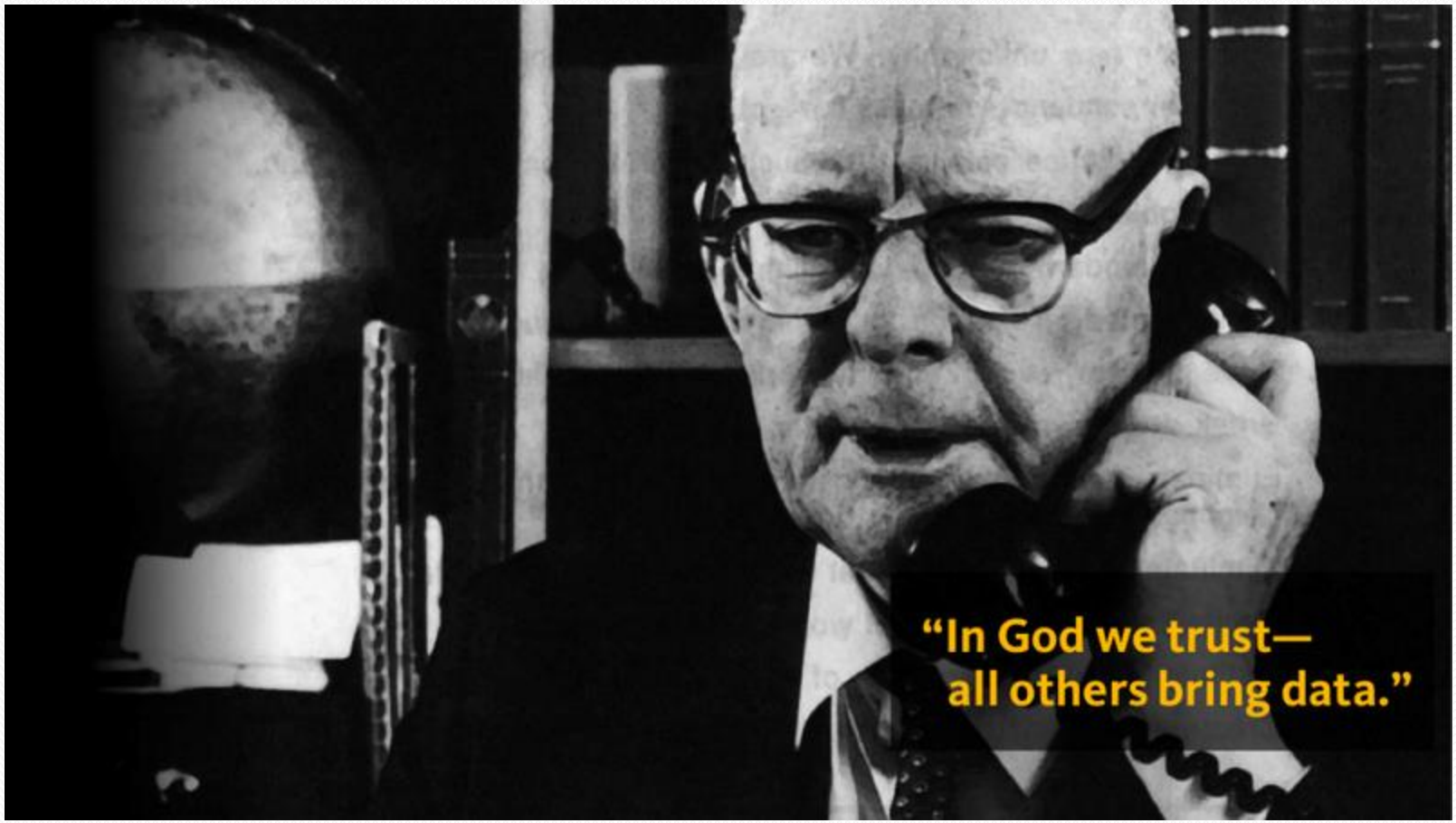
THIN FILM

POLYCRYSTALLINE

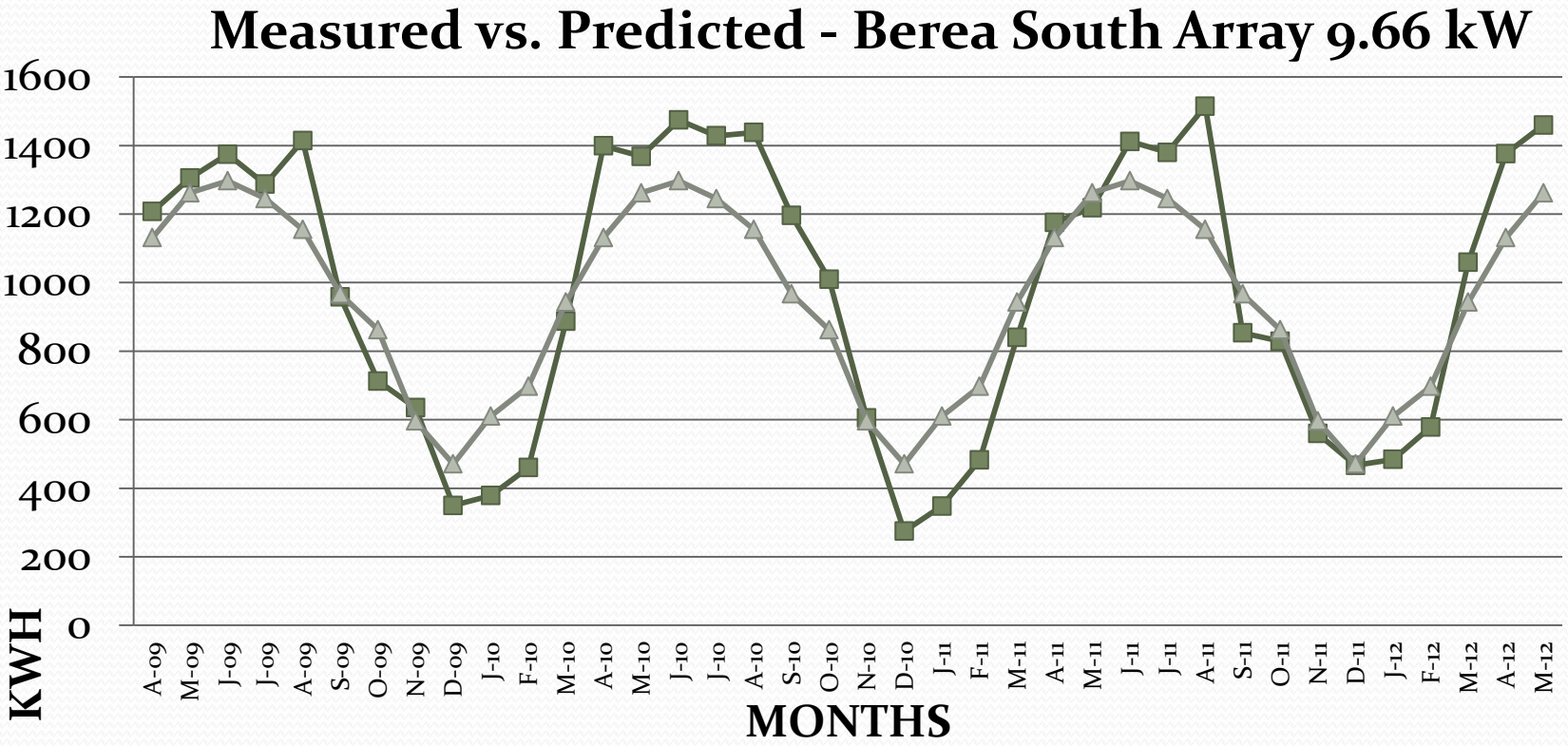
MONOCRYSTALLINE

Solar Photovoltaic

- What we have learned over the last 5 years
  - Industry Standards – NABCEP Certification
  - Solar is becoming more affordable
  - Paybacks becoming more attractive
  - Efficiencies have increased in panels
  - Integration into classroom
  - System production is greater than model predictions


"In God we trust—
all others bring data."

Collecting Data



Sustainability/Existing Buildings

- Doing more with what we already have
- Saving money
- Improving the learning environment
- Culture established for the next generation

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green school

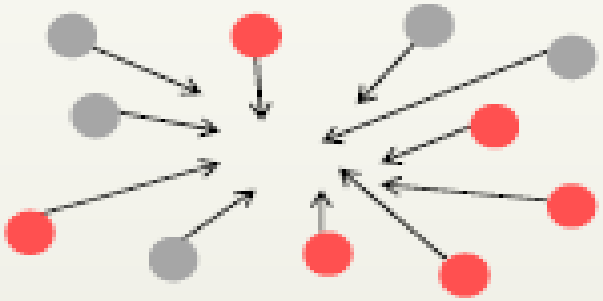
a school building or facility that creates a healthy environment that is conducive to learning while saving energy, resources and money

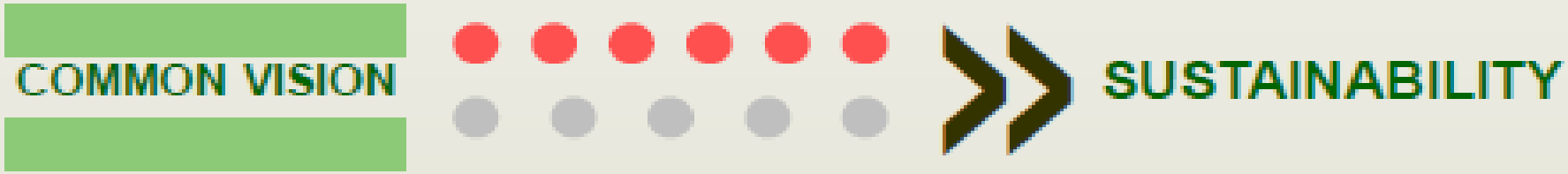
LEED EB PILOT PROJECT WILMORE ELEMENTARY SCHOOL

Question: What is LEED EB?

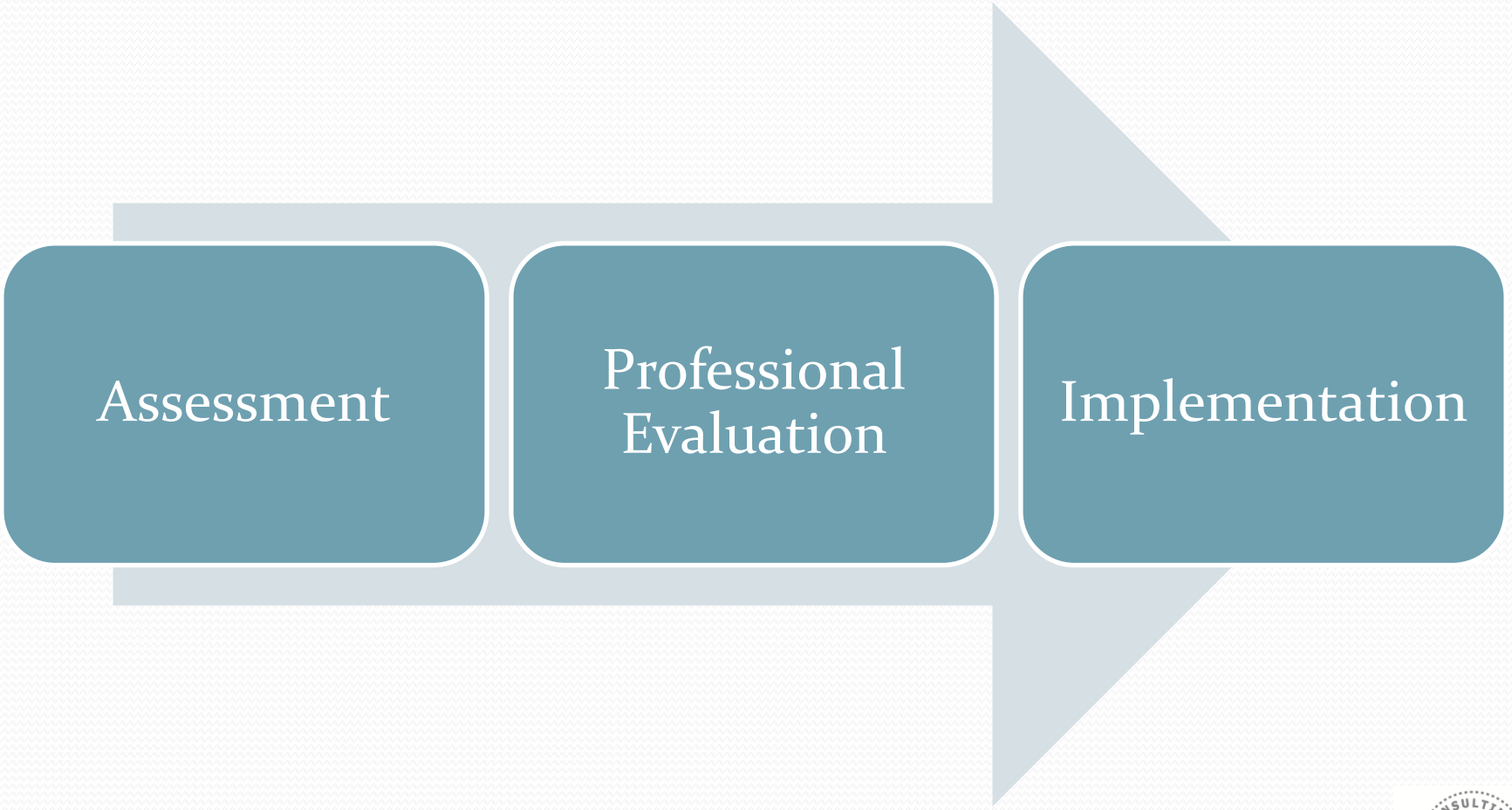
LEED-EB embraces all the main aspects of ongoing building operations and maintenance that have significant impact on building occupants or the environment.

Stakeholders: Culture Shift

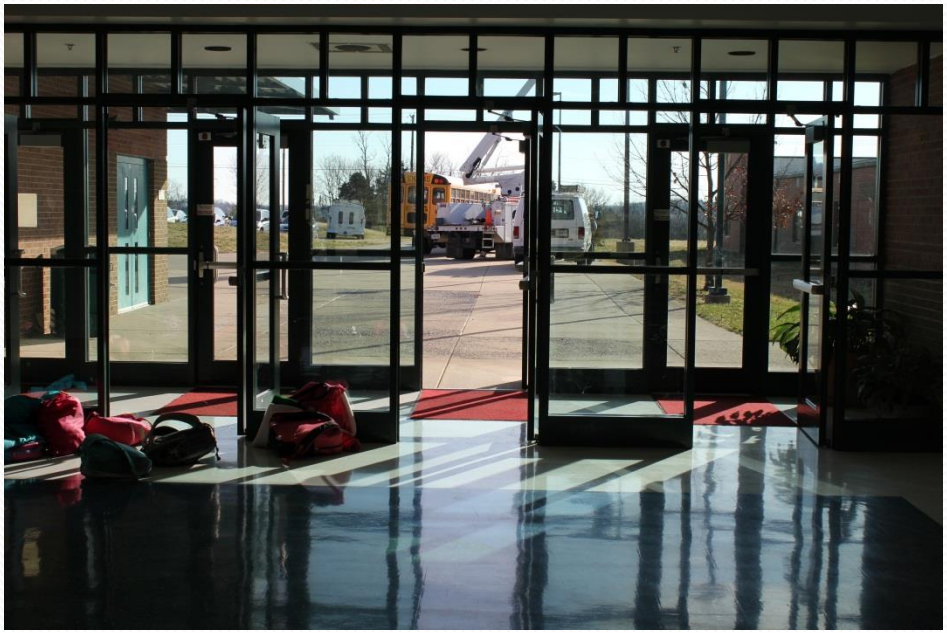




Existing Building Certification Process

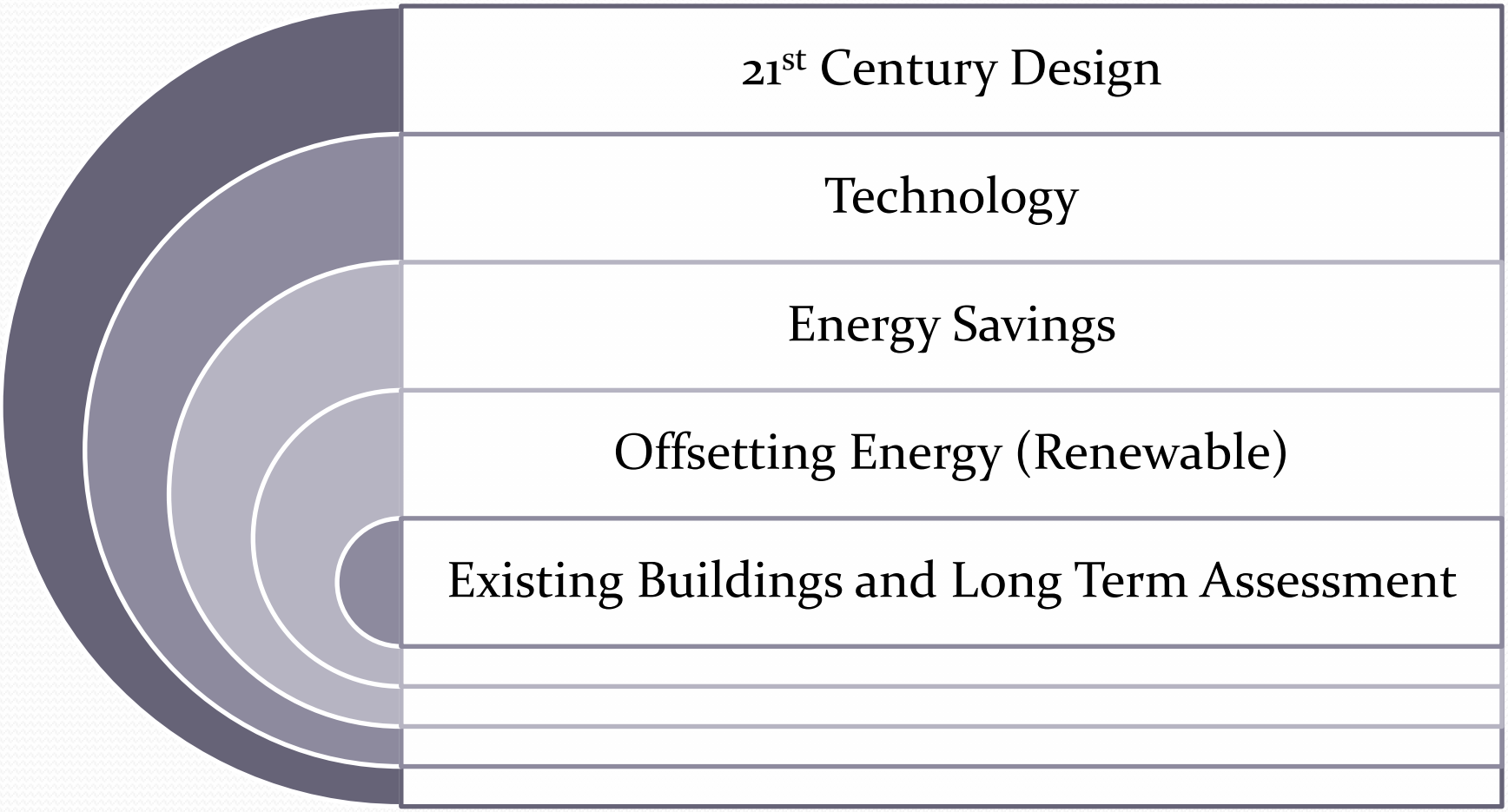



ELEMENTARY



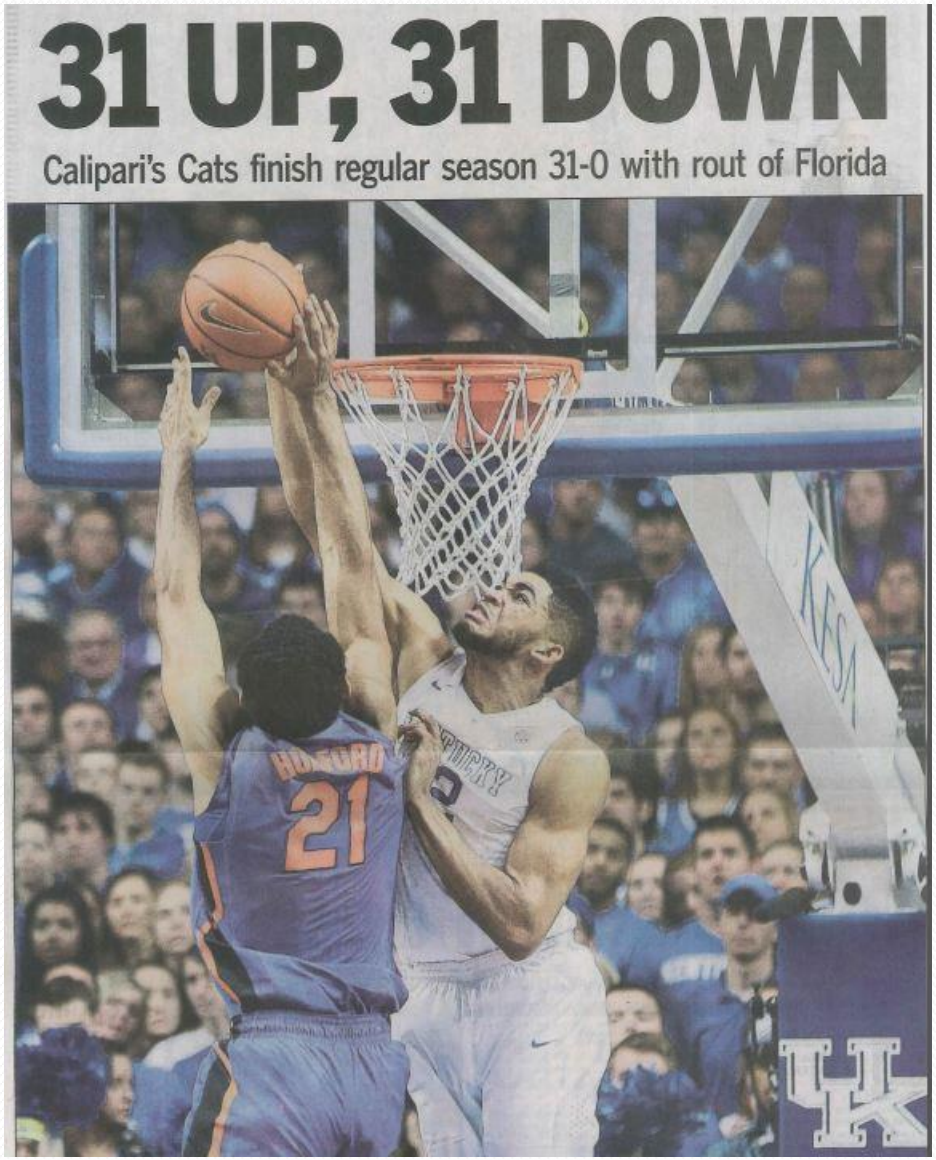
The Wilmore Effect

- Energy Star Score Increased from 69 to 83 in the past 6 months.
- Saving money – Over $10,000 in water and electric savings over the past 6 months.
- Improving the learning environment – Creating purchasing policies.
- Culture established for the next generation – recycling program, dark campus, getting the community to "buy-in."


21st Century Design
Technology
Energy Savings
Offsetting Energy (Renewable)
Existing Buildings and Long Term Assessment

Questions?

Questions?


31 UP, 31 DOWN
Calipari's Cats finish regular season 31-0 with rout of Florida
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